A CGE Analysis of Pakistan-Turkey Free Trade Agreement

Ashfaque Ali

14 April 2017

A CGE Analysis of Pakistan-Turkey Free Trade Agreement

Ashfaque Ali

Abstract

This paper investigates the possible impacts of Pakistan-Turkey free trade agreement (Pak-Turk FTA) on various sectors of the economy in the two countries under four different possible FTA scenarios by using computable general equilibrium model GTAP. Global Trade Analysis Project (GTAP) model has been extensively used in FTAs and other Trade related studies to evaluate the economy-wide potential impact of economic policy reforms. Current study uses the GTAP database7 which includes; 57 tradable commodities and 113 regions across the world.

Our findings suggest that; Turkey is more beneficial from Free Trade Agreement as compared to Pakistan .Overall impact of trade liberalization is favorable for both economies, but liberalization of protected sectors may prove to be unfavorable for the economy in case of Pakistan. And there is a huge potential for bilateral trade in textile and chemical sector.

Keyword: Computable General Equilibrium (CGE) Analysis, Free Trade Agreement (FTA), Pakistan, and Turkey.

JEL classification: F10, F14, F17

1. Introduction;

Turkey and Pakistan have been enjoying friendly relationships since 1948. Both countries have not only strong political, economic, cultural and religious ties but are also emotionally well connected. Many Turks love Pakistan because Muslims of India financially helped Turkey's war of independence that took place just after WWI (Hussain, 2008).

Turkey is also conceived as a model of modern Muslim state in Pakistan. After Saudi Arabia, Turkey is the most respected and popular country among Pakistani community because Turkey proved itself as a true friend by helping out Pakistan in hard times and natural disasters. Turkey helped Pakistan in 2005 and 2007's earthquakes and in 2010's flood victims. Turkey sent US$150 million financial aid in 2005 and eight plans full of 244 tons humanitarian aid and $10 million as financial aid for flood victims in 2010. Former Turkish Prime Minster Davutoglu announced $20 million aid for the internally displaced persons owing to the ongoing Operation Zarb-e-Azb.

Turkey supports Pakistan's stance on Kashmir issue and in turn, Pakistan also maintenance Turkey's stance with respect to northern Cyprus. Turkey and Pakistan have strong military and strategic cooperation, with the provision of equipment and military training to soldiers. Pakistan and Turkey have long experience of working together in different organizations and agreements. Both countries are part organizations like Economic Cooperation Organization, D-8, and Organization of Islamic Cooperation. They have done agreements include; Trade Agreement 1965, Economic and Technical Cooperation Agreement 1976, Prevention of Double Taxation Agreement 1988 and Reciprocal Promotion and Protection of Investments 1997 (CIDOB, 2012).

Turkey-Pakistan Business Council was founded in order to build up strong relations between the private sectors of the two countries and encourage trade. Turkey-Pakistan Business Council and the Union of Chambers and Commodity Exchanges of Turkey are closely cooperating with the Federation of Pakistan Chambers of Commerce and Industry to provide a common platform to both side's business communities to easily interact with each other and further enhance business relations.

Despite of all Pakistan's and Turkey's efforts to enhance trade, the volume of trade remained very low. One of the reasons of low trade is that both countries trade in similar products such as cotton, rice, leather and textiles and have same target markets.

Many Pakistani and Turkish economists suggested that even though both countries have similar products and same target markets, but they still can trade on basis of comparative advantages. Pakistan can import Turkish dairy products and refrigerators, washing machines, electronic goods, automobiles and other durable items, which are qualitatively better and cheaper than Western, East Asian products. Likewise, Turkey can import dried fruit, handicrafts, rice, cotton and textiles from Pakistan, because these products are comparatively cheaper in Pakistan than any other place in the world (Business Council, 2015).

A High Level Cooperation Council (HLCC) at the prime ministerial level was established in 2009 and is expected to meet annually in both countries to review trade and economic cooperation. The HLCC is mandated to oversee and steer the unique partnership and intensify cooperation between the two countries at the first HLCC meeting held in Ankara in December 2010. 18 Memorandums of Understanding (MoUs) and agreements were signed between the two

countries. Another nine cooperation agreements relating to investment, energy, and communications were finalized at the second HLCC meeting held in Pakistan in May 2012.

3rd high level cooperation council meeting held in Ankara on 17th September 2013, 12 memorandums of understanding (MOUs) and agreements signed relating intensify cooperation in diverse fields, including trade, energy, infrastructure development, security, education, culture and science and technology as well as enhanced efforts for peace in the region.

4th HLCC meeting held in Islamabad on 17th February 2015, 11 different MOUs signed relating to fight against terrorism, security, trade, energy, transportation and other areas. Prime Minister of Turkey Ahmet Davutoglu and Prime Minister Nawaz Sharif, which had decided to begin negotiations of a comprehensive Free Trade Agreement between the two countries and Sat an ambitious target of taking the bilateral trade from existing $3 billion to $5-10 billion in the next few years.

Since 2015, three rounds of FTA talks have taken place, two in Ankara and one in Islamabad. Both countries signed the Terms of Reference for negotiations on bilateral Free Trade Agreement in the first round of talks.

During the second and the third round, the matters pertaining to tariffs, customs facilitation, and safeguard measures, rules of origin, tariff reduction modality, bilateral investment mechanisms, and services were discussed extensively.

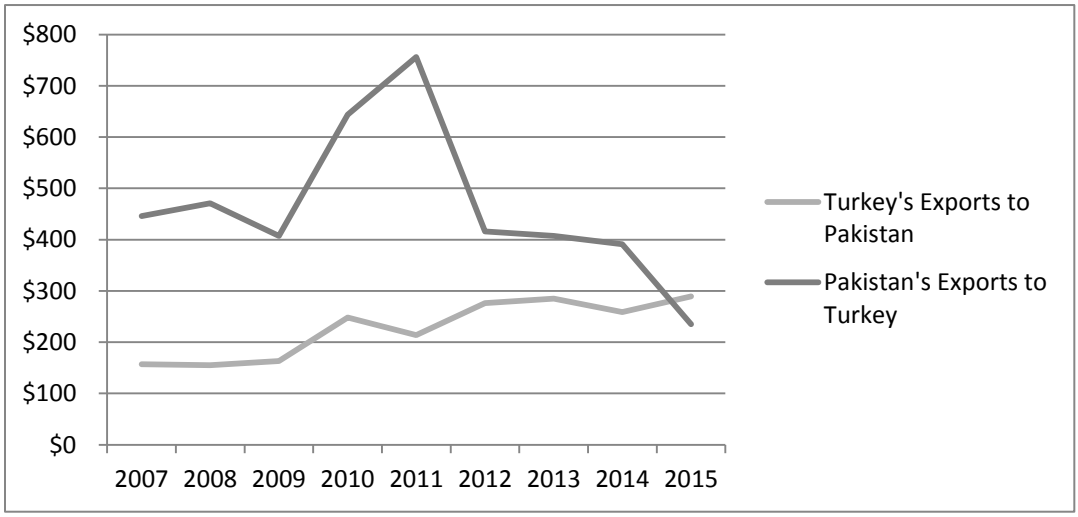
The 4th Round of Pakistan-Turkey Free Trade Agreement negotiations held in Islamabad on 29th August 2016, in which both countries have agreed to eliminate 85% percent tariffs, shall include

regulatory duties and additional duties in case of Pakistan; and additional duties and mass housing fund duties in case of Turkey.

2. Objectives from FTA:

Turkey wants to expand its export market for products like vehicles, electrical equipment and machineries in Pakistan. There is huge potential for these products. On the other hand, Pakistan wants to remove anti-dumping duties that Turkish government has imposed on their top exports in form of safeguard measures on average 20% to 25% (Business Council, 2015).

Figure1: ***Trade between Pakistan and Turkey in USD Millions, 2007-15***



Source: UN COMTRADE.

Turkey was the 8th largest importing partner of Pakistan in 2009-10.The trade between both countries was at the height of $1 billion. Later in 2011, trade declined to half due to the imposition of on average 18% Turkish import duties in the form of safeguard measures on

imports from developing countries. Throughout 2007 to 2015, mostly trade remained in favor of Pakistan and major exports to Turkey were garments, fabrics, and cotton.

Table 1: ***Turkey's Top Ten Exports in 2015***

HS codes	Commodity i	Exports in US($) millions	Share in total exports (%)	Export to Pakistan US($) millions
Total	All Products	143,850.37	100	205.23
87	Vehicles other than railway or tramway rolling-stock, parts thereof	17,463.56	12	5.3
84	Boilers, machineries and mechanical appliances, parts thereof	12,333.8	8.6	55.9
71	Precious stones, precious metals, pearls and articles thereof	11,263.51	8	29 (thousands)
61	Knitted and crocheted goods and articles thereof	8,928.09	6.2	.71
85	Electrical machinery and equipment, parts thereof	8,280	5.7	32.3
72	Iron and steel	6,556.74	4.6	2.67
62	Non knitted and crocheted goods and articles thereof	5,917	4	1.2
73	Articles of iron or steel	5,465.81	3.8	13.59
39	Plastic and articles thereof	5,358.85	3.7	16.8
27	Mineral fuels, mineral oils and products of their distillation	4,518.43	3	2.57

Source: UN COMTRADE

Compared to Pakistan, Turkey's top exports are more diversified like, vehicles, electrical machineries, textile and minerals.

Major destinations of Turkey's top exports are Germany $16.9 billion, Iraq $10.8 billion, The United Kingdom $10.3 billion, France $7.87 billion and Italy $7.58 billion. Pakistan's share in Turkey's export sector is only .2% which is considerably small.

Table 2: ***Pakistan's Top Ten Exports in 2015***

HS codes	Products	Exports in US($) millions	Share in Total Exports (%)	Export to Turkey US($)millions
Total	All Products	22,089	100	310.54
63	Textile makeups (excl.b.ware & towels)	3,759.72	17	5.7
61	Knitwear (hosiery)	2,359.6	11	5.42
1006	Rice	1,927.2	9	6.9
5205	Cotton yarn	1,529.8	7	32.7
630210	Bed ware	654.7	3	13(hundreds)
5208	Cotton fabrics	628	3	16.2
08	Fruits	415.33	2	.83
29	Organic chemicals	6.062	.027	59 (thousands)
961900	Towels	5.380	.024	n/a
6210	Ready-made garments (articles of apparel & clothing)	1.748	.008	12 (thousands)

Source: UN COMTRADE

Pakistan's export sector seems to be more textile oriented sector because $9 billion out of $22 billion export earnings comes from textile made products. This shows why Pakistan is more focused on the removal of textile duties during FTA talks with Turkey.

Major destinations of Pakistan's top exports are the United States $3.55 billion, China $2.87 billion, Afghanistan $2.5 billion, Germany $1.6 billion and the United Kingdom $1.67 billion. Despite of all efforts and good political, cultural and religious relations only 1% Pakistani exports out of $22 billion exports goes to Turkey.

Table 3&4: ***Pakistan's Top Ten Exports to Turkey: Market Share and competitors***

HS Code	To Ten Product	Export to Turkey US($) Millions	Tariff imposed by Turkey %	Duties Other Than Tariff %
Total	**All products**	**310.54**		
520942	Denim fabrics of cotton,>/=85%, more than 200 g/m2	56.42	6.5	38
520532	Cotton yarn,>/=85%,multi,uncombed,714.29 >dtex>/=232.56,nt put up,nes	22.42	3.2	45
390760	polyethylene terephthalate	21.60	3	11
520819	Woven fabrics of cotton,>/=85%, not more than 200 g/ m2,unbleached, nes	17.72	6.4	24.4
520512	Cotton yarn,>/=85%,single,uncombed,714.29 >dtex>/=232.56, not put up	8.33	3.2	45
120740	Sesamum seeds, whether or not broken	6.65	16.9	
521142	Denim fabrics of cotton, <85% mixed with m-m fib, more than 200 g/m2	5.86	6.4	34.8
570110	Carpets of wool or fine animal hair, knotted	5.51	4.9	50
100630	Rice, semi-milled or wholly milled,	2.44	45	
220710	Undenaturd ethyl alcohol of an alcohol strgth by vol of 80% vol/higher	2.29	27.2	

Source: PBC and UN COMTRADE

HS Code	Commodity i	Top 5 Competitors	Turkish Import Market Share %
520942	Denim fabrics of cotton,>/=85%, more than 200 g/m2	Pakistan	26
		Egypt	21
		Italy	12
		Turkmenistan	9
		India	5
520532	Cotton yarn,>/=85%,multi,uncombed,714.29 >dtex>/=232.56,nt put up,nes	Pakistan	71
		Ethiopia	14
		Azerbaijan	6
		India	4
		Egypt	2
390760	polyethylene terephthalate	China	17
		Pakistan	12
		India	9
		Rep Of Korea	7
		Germany	5
520819	Woven fabrics of cotton,>/=85%, not more than 200 g/ m2,unbleached, nes	China	49
		Pakistan	44.7
		Indonesia	4.5
		Egypt	1
		Thailand	.8
520512	Cotton yarn,>/=85%,single,uncombed,714.29 >dtex>/=232.56, not put up	Turkmenistan	70
		Vietnam	12
		Pakistan	4
		Uzbekistan	3
		Kazakhstan	2

Source: UN COMTRADE

Table 5&6: ***Turkey's Top Ten Exports to Pakistan: Market Share and competitors***

HS Code	Products	Export to Pakistan US($) Millions	Tariff Imposed By Pakistan
Total	All Products	205.23	n.a
730890	Structures& parts of structures ,i/s (ex prefabbldgs of headg no.9406)	7.84	20
961900	Sanitary towels (pads) and tampons, napkins and napkin liners for babies, and similar arti	6.79	n.a
290121	Ethylene	4.48	5
290243	P-xylene	4.23	
320290	Inorganic tanning subst; tanning preps; enzymatic preps for pre-tanning	4.12	15
390690	Acrylic polymers nes, in primary forms	3.83	10.4
380991	Finish gagents ,dye carriers & oth prep, nes ,for use in the textile indust	3.22	8
848310	Transmission shafts and cranks, including cam shafts and crank shafts	2.97	31.3
200979	Apple juice, unfermented, Brix value > 20 at 20°C, whether or not cont	.77	25
300220	Vaccines, human use	.52	6.7

Source: PBC and UN COMTRADE.

HS Code	Commodity i	Top 5 Competitors	Pakistani Import Market Share %
730890	Structures& parts of structures ,i/s (ex prefabbldgs of headg no.9406)	China	50
		Rep Of Korea	17
		Turkey	12
		Japan	7
		UAE	6
961900	Sanitary towels (pads) and tampons, napkins and napkin liners for babies, and similar arti	Egypt	40
		China	40
		Saudi Arab	11
		Turkey	6
		Hungary	3
290121	Ethylene	UAE	51
		Italy	13
		Turkey	6
		Malaysia	6
		Netherland	5
290243	P-xylene	Kuwait	46
		Saudi Arab	42
		India	10
		Turkey	1.5
		Oman	.004
320290	Inorganic tanning subst; tanning preps; enzymatic preps for pre-tanning	Turkey	43
		South Africa	27
		India	13
		Germany	6
		Argentina	2

Source: UN COMTRDE

Turkey is not only a major textile exporter country, but it also imports textile products in large quantities. In 2015, Turkey has imported approximately $3.734 billion's worth textile products from all over the world, and the most textile imports come from China, Bangladesh, India and Vietnam.

The major challenge for Turkey is that, even though more than 100 Turkish firms are working in Pakistan in the field of infrastructure and transport, but still they are less integrated in Pakistani business community compared to their competitors.

Pakistan's performance is comparatively better in Turkish imports market than its competitors and this FTA will further provide an advantage to Pakistan over its competitors. Pakistan's major challenge is to make Turkey agree on removal of additional duties in the form of safeguard measures on Pakistani products.

3. Literature Review

(Suvankulov & Ali, 2012) used gravity model to analyze the trends and prospects of bilateral trade between Turkey and Pakistan. The findings of model revealed that, for Turkish exports to Pakistan grew from $251.3 million in 1996 to $749.2 million in 2009, but the factual numbers were substantially lower than the projected numbers. On the other hand in case Pakistani exports to Turkey model projected growth was from $93.2 million in 1996 to $294.3 million in 2009, but the actual performance of Pakistani exports were better than the projected. Authors concluded that, there is an existence of extensive unexploited potential for Turkish exports in Pakistan and FTA will facilitate the partnership and provide momentum for Turkish business in their efforts to tap Pakistani market.

(Gul, 2014) used three different trade indices; Trade Complementary Index (TCI), Export Similarity Index and Intra-Industry Trade Index. In her study to analyze Pakistan's trade potential with Turkey, the results of TCI were favoring Turkey. TCI for Turkish exports to Pakistan imports was 26.89 and TCI for Pakistani exports to Turkish imports was 13.6.

The IIT for Pakistan and Turkey was 18.8% and according to results of export similarity index almost 39% of both countries exports are similar.

Study conducted by (KCCI, 2015) to find out comparative advantages of both countries by using Trade Specialization Index. Findings of the study revealed that, Pakistan has comparative advantages over Turkey in 25 products and most of those were textile products. While, Turkey has comparative advantage over Pakistan in 52 products.

From the above studies we can conclude that, there are great benefits for both countries to do trade on the basis of FTA. However, Turkey is comparatively more beneficial from FTA than Pakistan but despite of that fact, Turkey has failed to fully utilize its potential benefits form trade for many years.

It is important to note that none of the above studies have taken into account the final tariff schedule as agreed by the both countries. And also, no analysis has been made to assess the overall impact of FTA on both economies because previous studies focused on partial equilibrium models to evaluate the impact of trade agreement but partial equilibrium model aren't capable of capturing economy-wide impact of an FTA.

The objectives of the present study therefore was to fill this gap by applying a general equilibrium methodology to help in assessing the possible impact of this trade agreement on the both economies as well as on the sectors of their economy and find out the best tariff schedule

scenarios for both countries individually and mutually in the context of ongoing negotiations between Pakistan and Turkey.

4. Methodology:

There are two different approaches to analyze the impacts of policy changes; a) partial equilibrium and b) general equilibrium. Partial equilibrium models are comparatively simple and evaluate the impacts of policy changes on few selected sectors of the economy. On the other hand, general equilibrium models are comparatively complex and evaluate the economy-wide impact of a policy change.

Since the objective of this study is to evaluate the economy-wide impact of FTA on both countries, so for the purpose of analysis I selected the widely used general equilibrium model in trade GTAP (Global Trade Analysis Project).

GTAP provides an economy-wide framework for analysis that includes the interdependencies within and between countries. The model includes; industrial sectors, households and governments across the countries.

Following are some important features of the GTAP model:

a) Economy is at equilibrium when, all firms have zero real profit, households are on their budget constraints and global saving is equals to global investment.
b) Global Consumption equals to global production
c) Prices and quantities are simultaneously determined in both commodity and factor market.
d) Factors of production; land, capital, skilled labor, unskilled labor and natural resources.

e) Firms operate under constant returns to scale, where technology described by Leontief and CES functions.

f) Firms minimize cost of inputs given their level of output and fixed technology.

g) Domestically produced goods and imports are imperfectly substituted (based on Armington elasticity).

h) Household's behavior is determined from an aggregate utility function, which is modeled by using Cobb-Douglas function with constant expenditure share.

5. Data and Aggregation

GTAP model uses the GTAP database, in this analysis we used GTAP database 7. The reference year for this database is 2004 and database includes; 113 regions across the world and 57 tradable commodities of the World. The tariff data is mainly in the form of applied ad valorem rates. The current study has aggregated 57 commodities into18, and 113 regions into 12.

Regions include; Turkey, Pakistan, EU, Sub-Saharan Africa, Latin America, North America, MENA, South Asia, South East Asia, East Asia, Oceania and Rest of world.

Sectors include; Leather, Apparels, Textile, Agriculture, Processed Rice, Paddy rice, Minerals, Chemicals, Electronics, Metal, Machinery, Vehicles, Extraction, Processed Food, Light Manufacturing, Utility _construction, Transport & communication and other service.

We build four different scenarios to analyze the possible impacts of the PAK-TURK FTA, and in order to make it more realistic model also takes into account, the protected sectors of the both economies. In case of Pakistan textile and automobile are two protect sectors and in case of Turkey, Rice and Agriculture sectors are considered as protected sectors.

Scenarios;

Simulation1. Full trade liberalization in all sectors

Simulation2. 85% trade liberalization in all sectors (based on agreement)

Simulation3. 85% trade liberalization in all sectors other than protected sectors.

Simulation4. 85% trade liberalization in other than protected sectors and 50% trade liberalization in protected sectors.

6. Results of Simulations;

Table 7: Sectorial impacts of FTA

Sectors	Simulation 1		Simulation 2		Simulation 3		Simulation 4	
	Turkey	**Pakistan**	**Turkey**	**Pakistan**	**Turkey**	**Pakistan**	**Turkey**	**Pakistan**
Leather	-0.14	-0.42	-0.11	-0.47	-0.06	-0.36	-0.08	-0.38
Apparels	0.14	-0.28	0.15	-0.34	0.16	-0.35	0.15	-0.32
Textile	0.19	1.07	0.16	0.76	0.06	0.79	0.11	0.81
Agriculture	-0.15	0.50	-0.15	0.26	-0.10	-0.42	-0.10	-0.03
Processed Rice	-0.05	-0.16	-0.06	-0.27	-0.08	-0.27	-0.06	-0.24
Paddy rice	-0.28	-0.80	-0.24	-0.76	-0.21	-0.58	-0.21	-0.63
Minerals	0.53	-0.47	0.35	-0.48	0.44	-0.42	0.43	-0.42
Chemicals	0.50	1.00	0.36	0.72	0.41	0.79	0.40	0.79
Electronics	0.13	-0.37	0.05	-0.39	0.13	-0.37	0.12	-0.37
Metal	0.10	-0.24	0.04	-0.28	0.10	-0.24	0.08	-0.24
Machinery	0.46	-0.13	0.31	-0.17	0.39	-0.16	0.37	-0.16
Vehicles and parts	0.14	0.54	0.06	0.45	-0.11	0.08	-0.02	0.22
Extraction	0.23	0.45	0.13	0.35	0.16	0.31	0.15	0.31
Processed Food	-0.02	-0.31	-0.05	-0.37	0.00	-0.27	-0.01	-0.27
Light Manufacturing	0.27	-0.22	0.17	-0.26	0.24	-0.23	0.23	-0.22
Utility & construction	-0.19	-0.37	-0.18	-0.40	-0.12	-0.32	-0.13	-0.32
Transport& Communication	-0.13	-0.30	-0.14	-0.35	-0.09	-0.27	-0.09	-0.27
Other Services	-0.17	-0.39	-0.18	-0.45	-0.11	-0.34	-0.12	-0.34

Table 8: Summary of different simulations

Change	Simulation 1		Simulation 2		Simulation 3		Simulation 4	
	Turkey	Pakistan	Turkey	Pakistan	Turkey	Pakistan	Turkey	Pakistan
Terms of trade %	0.036	0.105	0.026	0.090	0.021	0.097	0.023	0.094
Allocative efficiency	10.49	-5.65	9.60	-1.38	8.56	3.16	9.12	1.92
Trade balance millions $	-42.79	-46.01	-32.62	-37.32	-27.11	-35.61	-29.48	-36.52
GDP millions $	11.85	-5.85	9.59	-1.37	8.56	3.16	9.13	1.92
GDP%	0.0038	-0.0062	0.0032	-0.0015	0.0029	0.0033	0.0031	0.0020
Exports millions $	68.00	42.00	53.32	29.06	48.28	15.80	50.49	21.11
Exports %	0.0800	0.2500	0.0637	0.1746	0.0577	0.0949	0.0603	0.1268
Welfare Effect millions $	47.17	11.50	36.21	14.92	29.35	22.12	32.42	19.88

Terms of trade (ToT) is the ratio of export price index of the region to its import price index and a positive ToT is good for an economy because it shows; higher exports prices compares to its imports prices.

In case of Pakistan and Turkey, liberalization seems to be positively related to the terms of trade, as liberalization increases from 85% (Simulation2) to 100% (Simulation1) in **Table 8**, the terms of trade of the both countries also improve.

Allocative efficiency represents the efficient allocation of scarce resources and allocative efficiency increases when any change in the allocation of scarce resources improves the national welfare. Increase in taxed activities and decrease in subsidized activities encourages the efficiency because allocative efficiency is directly related to taxed activities and inversely related to subsidized activities (Sikdar, 2011).

In case of Pakistan liberalization of all sectors other than protected sectors is positively related to allocative efficiency and the liberalization of protect sectors is negatively related to efficiency. And contributions of textile and chemical sectors are high in efficiency gains. Whereas, in Turkey allocative efficiency improves with the increase in level of liberalization and the major

contributions in the efficiency gains come from the efficient allocation of unskilled labor and capital.

Trade Liberalization is positively related to trade deficit for both countries; trade deficit increases with the rise in level of liberalization.

In GTAP model, welfare effect is derived from aggregate utility function which allocates household expenditure across three broad categories: private, government, and savings expenditures (Huff & Hertel, 2000). Any change in aggregate utility function due to the policy changes is called equivalent variation (EV). Turkey's welfare rises with the increment in liberalization; while Pakistan's welfare is negatively related to the liberalization of protected sector and positively to the liberalization of all other sectors. The liberalization of protected sectors in Pakistan raises the efficiency losses and losses to producer welfare (due to increased competition) are larger in comparison to gains in consumer welfare (due to decline in prices).

7. Conclusion:

For Pakistan scenario3 is favorable and scenrio1 is favorable in case of Turkey, because Pakistan's gains in GDP, welfare and efficiency are higher in scenrio3 compares to other three scenarios and Turkey's gain in GDP, welfare, export and efficiency are higher in scenrio1 compares to other scenarios. Scenrio-3 seems to be a point at which mutual gains from FTA are higher to both economies compared to any other scenario.

This study also confirms the results of previous studies by (Suvankulov & Ali, 2012) and (Gul, 2014) that Turkey is more beneficial from FTA compared to Pakistan. Trade liberalization is overall a beneficial choice for both economies but liberalization of protected sectors may prove to be an unfavorable decision for Pakistani economy.

References

AYDIN, F., SAYGILI, H., & SAYGILI, M. (2007). *Empirical Analysis of Structural Change in Turkish Exports.* Research and Monetary Policy Department. Ankra: The Central Bank of the Republic of Turkey.

BROCKMEIER, M. (2001). A Graphical Exposition of the GTAP Model. *GTAPTechnical Paper No. 8*.

Business Council, T. P. (2015). *The Proposed Pakistan Turkey Free Trade Agreement, Pakistan must not let emotions dictate this FTA!* Karachi: The Pakistan Business Council.

CIDOB. (2012). Foreign Relations of Pakistan. *CIDOB International Yearbook*.

Estrada, G., Park, D., Park, I., & Park, S. (2012). The PRC's Free Trade Agreements with ASEAN, Japan,and the Republic of Korea: A Comparative Analysis. *ADB Working Paper Series on*.

Gul, A. (2014). Analyzing Pakistan's Trade Opportunity with Turkey. *The Lahore Journal of Economics*, 349-370.

Hertel, T. W., & Tsigas, M. E. (1997). Structure of GTAP. *Global Trade Analysis: modeling and applications*, 13-73.

Huff, K. M., & Hertel, T. W. (2000). Decomposing welfare changes in the GTAP model. *GTAP Technical Paper No. 5*.

Hussain, M. (2008). PAK-TURKEY RELATIONS: On the Common Ties. *Alternatives: Turkish Journal of International Relations, 7*, 67-85.

KCCI. (2015). *Pakistan Turkey FTA In The Offing Learning From The China Experience.* Research & Development Cell. Karach: Karachi Chamber of Commerce & Industry.

McDonald, S., Robinson, S., & Thierfelder, K. (2007). Globe: A SAM Based Global CGE Model using GTAP Data. *Departmental Working Papers No.14*, 108.

Memon, D. A. (2014). *Denim Industry of Pakistan: New import duty on denim by Turkey.* PTJ.

Plummer, M. G., Cheong, D., & Hamanaka, S. (Hamanaka). *Methodology for Impact Assessment of Free Trade Agreements.* Philippines: Asian Development Bank.

Sikdar, C. (2011). Potential economic impact of India-Sri Lanka bilateral trade liberalization. *Presented at the 14th Annual Conference on Global Economic Analysis.* Venice, Italy .

Sonmez, Y., McDonald, S., & Perraton, J. (2007). Turkey and Its Preferential TradeAgreements (PTAs). *10th Global Economic Analysis Conference, "Assessing the Foundations of Global Economic Analysis".* West Lafayette, USA: Purdue University.

Suvankulov, F., & Ali, W. (2012). Recent Trends and Prospects of Bilateral Trade between Pakistan and Turkey: A Gravity Model Approach. *Journal of International and Global Economic Studies*, 57-72.

Wing, I. S. (2004). Computable General Equilibrium Models and Their Use in Economy-Wide Policy Analysis: Everything You Ever Wanted to Know (But Were Afraid to Ask). *MIT Joint Program on the Science and Policy of Global Change*.